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Claims

1-12 Canceled

13. (New) A method for testing the function of a lamp circuit, having at least one lamp, the method comprising:

measuring a current and voltage of the lamp circuit;

specifying a resistance value as a polynomial having an order, depending on the measured voltage of the lamp circuit, wherein parameters of the polynomial are determined by a number of measurements which at least correspond to the order of the polynomial when operating conditions are known to differ, and the resistance value or a value derived from the resistance value are compared with a specified value.

14. (New) A method according to claim 13, wherein the polynomial is at least a 2nd order polynomial according to $R = b \cdot U^2 + c \cdot U + d$ is used, wherein R is the resistance and U is the voltage.

15. (New) A method according to claim 13, wherein the polynomial is at least a 3rd order polynomial according to $R = a \cdot U^3 + b \cdot U^2 + c \cdot U + d$, wherein R is the resistance and U is the voltage.

16. (New) A method according to claim 13, wherein the resistance value is related to a nominal power, in which when measurements are taken under operating conditions which are known to differ, the parameters of the polynomial of the resistance value are in each case multiplied by the nominal power.

17. (New) A method according to claim 16, that the nominal power of the lamp circuit is calculated as the value to be compared with a specified value according to the

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formula:

$$P_{nom} = R_{spec} \cdot \frac{I_{lamp}}{U_{lamp}} \quad \text{wherein}$$

I_{lamp} is the effective current through the lamp circuit

U_{lamp} is the effective voltage above the lamp circuit

R_{spec} is the specific lamp resistance value in [$\Omega \cdot W$] related to the nominal power.

18. (New) A method according to claim 16, as a specified value, the set current through the lamp circuit under the effective voltage is calculated according to the formula:

$$I_{lamp_set} = \frac{P_{nom} \cdot U_{lamp}}{R_{spec}}$$

19. (New) A method according to claim 13, wherein the parameters of the polynomial of the resistance value are specified for a specified quantity of lamps which may be potentially used, wherein the lamps show nominal voltages which deviate from each other under the nominal voltage, and the resistance value is standardised to a shared nominal voltage, in which when measurements are taken under operating conditions which are known to differ, the parameters of the polynomial of the resistance value are in each case multiplied by the ratio of the shared nominal voltage to the averaged voltage of the lamps under nominal voltage.
20. (New) A method according to claim 19, wherein the nominal power is calculated as the value to be compared with a specified value according to the formula:

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$$P_{nom} = R_{spec_norm} \cdot \frac{I_{lamp} \cdot U_{nom_act}}{U_{lamp} \cdot U_{norm}} ; \quad \text{wherein}$$

I_{lamp} is the effective current through the lamp circuit

U_{lamp} is the effective voltage above the lamp circuit

R_{spec_stand} is the specific lamp resistance value in [Ω *W] in relation to a shared nominal voltage and nominal power

U_{norm} is the agreed shared nominal voltage, and

U_{nom_act} is the calculated voltage of all lamps under the nominal voltage.

21. (New) A method according to claim 19, wherein as a specified value, the set current through the lamp circuit under the effective voltage is calculated according to the formula:

$$I_{lamp_set} = \frac{P_{nom} \cdot U_{lamp}}{R_{spec_norm}} \cdot \frac{U_{norm}}{U_{nom_act}}$$

22. (New) A lighting system comprising:

at least one lamp; and

a control unit, which records a current and voltage of the at least one lamp, wherein in the control unit calculates the resistance of the lamp or a value derived from the resistance, and compares the resistance with specified values, detecting when any deviation from the specified values occurs that the lamp is defective, or does not comply with specifications.

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23. (New) A lighting system according to claim 22, wherein the lighting system has two or more lamps and the lamps are switched in parallel.

24. (New) A lighting system according to claim 23, wherein the lamps (L1, L2, L3) are switched in parallel with a differing nominal power, and a deduction is made from a size of deviation from the specified values as to which of the lamps is defective.